

December 1, 1955

Copy #1

PROGRESS REPORT NO. 7

This progress report on Contract SP-1913 is written on the anniversary of the official go-ahead for the project -- an even year ago. As of this date, the project has the following status:

1. Four aircraft have been designed, built and flown, except for the fourth, which will fly in three days.

2. The tenth fuselage is in the jig. (One fuselage was completed and destroyed for static test purposes; so, actually, the ninth airplane is well underway.)

3. Practically all of this Contractor's fabricated parts are completed for the contract.

4. Two crews have been trained for the ground service requirements.

5. Major modifications have been made in the ability to carry various items of military load, including nine types of equipment beyond the basic configuration originally designed into the aircraft.

6. The delivery schedule for the end aircraft has been accelerated by a month over the initial schedule.

7. A new facility at Bakersfield has been designed and will be in operation within four weeks.

8. The aircraft has essentially demonstrated its altitude capability, flight characteristics, structural integrity, and stability as a special equipment platform. While it has not yet demonstrated its maximum range, there is no reason to believe, at the present, that this cannot be achieved.

9. The foregoing has been accomplished substantially below the estimated cost to this point.

CONFIGURATION SUMMARY

A report is attached (Attachment #1) covering the current status of various equipment items developed for the aircraft. It is felt in order to summarize this Contractor's understanding of what the equipment items are, their current weights, and installation problems. Based on this report, a recommendation is made regarding what airplanes should be equipped with what particular equipment packages.

25X1

TS-142934
Copy 1 of 3

It is evident that the design military load will be exceeded in practically every case, because of the addition of such things as the autopilot, new communication equipment, and overweight of certain basic packages.

It is also of interest that during the time so much work was done on the aircraft design and testing, it has been impossible to choose the focal length for the "C" package!

Page 4 proposes a reasonable variation of aircraft configurations from this Contractor's point of view. It is evident, even at this point, that to obtain the configurations listed, it will be advisable to fly the fuselage sections of several aircraft from [redacted] back to the factory for modification. It is no longer practical to consider any major modification on airplanes prior to #10, because of the state of construction of this group of aircraft. 25X1

AIRCRAFT WEIGHT

The basic aircraft weight situation is outlined on pages 5 and 6. In the previous progress report, it was indicated that the writer believed the basic performance could be obtained with the weights then envisioned. The weight growth from this point on will cause a retrogression of performance from that initially quoted.

FLIGHT TEST STATUS

Airplane #2 is being modified for delivery to the training group, while airplane #4, incorporating the autopilot, has been taken over for flight test. It appears that a solution has been found to the engine control problem. The major engine problem existing to date is the presence of oil vapor in the cockpit pressurization area. Various filters are being tried to eliminate this oil.

Little flight testing has been done since the previous report, due to a tie-up of the base facilities. Flying should resume December 5th, subject to weather. Emphasis will be placed on long range flights.

It does not appear, from the tests to date, that the use of paint on the aircraft has reduced its drag a noticeable amount. It is apparently very difficult to reproduce data at altitude because of the presence of vertical air currents, which have a considerable effect on this airplane, and inconsistent engine performance to date. Further evaluation of paint will be carried on.

It has been necessary to add approximately 100% to the original oxygen quantity in the airplane. This has been due to excessive consumption of oxygen by the pilot when in the pressure suit. No data were available to show the current

rates of consumption for these conditions at the start of the project.

Blowouts of the engine and depressurization have occurred to altitudes over 70,000 feet. Operation of the pressure suit has been excellent.

CURRENT PROBLEMS AND QUESTIONS

1. From recent information, it appears that activation of the second and third groups will be considerably delayed from this Contractor's early understanding. This poses a great problem as regards the ground crew training program and over-all stringing out of the whole program for the first twenty aircraft. Why cannot the activation of the last two groups be accelerated?

2. What firm requirements can be set up regarding the configurations of the final ten aircraft?

3. What are the design number of missions per week to be attempted? There is a discrepancy of 500% between those being considered by the writer and those being planned for by several equipment manufacturers.

COSTS

The over-all expenditures on Contract SP-1913 to date are $7,145,738.33. This is 73.8% of the estimate to this point. All schedules are being met or beaten to date.

25X1

SUGGESTED CONFIGURATIONS

Airplane #	Basic Configuration	Possible Alt.	"Design" Alternate
1 2 3 4 5 6 7 8	Basic Photo - A2 Autopilot Electronics Pkg. #1 Radio ARC 34	A-1 B-1 C-1	Electronics Pkg. #2
9 10 11 12 13 14 15	APQ-56 S.C. Autopilot Electronics Pkg. #3 Radio ARC 34 S.C.	A-1 (Radome) Chart. Camera	A-1 A-2 B-1 C-1
16 17 18 19 20	Electronics Pkg. #4 Autopilot Radio ARC 34	A-1 A-2 B-1 C-1	APQ-56

WEIGHT EMPTY STATUS

Airplane #1 as weighed (-37 Engine & 2 Oil Coolers)		9957.8
ADD:		
Auto Pilot Instal.	+87.6	
Descent Chute	+30.4	
Double Brakes	+28.7	
Structural Changes:		
Static Test Beef Up	+ 4.3	
Prov. for Drift Sight	+ 2.8	
Tail Cone Augmenter Re-designed	+ 7.3	
Second Emergency Battery	+10.2	
Fuel System Changes:		
Pressurization	+ 7.1	
Sump Tank Interconnector	+ 2.1	
Goose Neck to Reduce Unusable Fuel	+ 0.9	
Tail Gear Emergency Release Mech.	+ 2.2	
Engine Pressure Ratio Indicator	+ 6.5	
Electrical Switches	+ 0.8	
Heavy Duty Screw Jacks	+ 2.4	
ARC-34 Equipment in Lieu of ARC-12	+34.2	
Access Provisions for APQ-56 & Electronic Package II	+ 5.0	
3.3 K.V.A. Alternator Instal. (Incl. 5# Eng. Rework)	+39.7	
Instal. Remote Sextant	+15.0	
REMOVE:		
Outboard Aileron Bal. Weight Re-designed	- 2.1	
Oil Cooler Deleted (also 19# of useful load)	-43.4	
Electronic Package #1 moved to Military Load	-17.0	
POSSIBLE CHANGE:		
Add Paint	+85.0	
TOTAL CHANGES		+309.7
WEIGHT EMPTY (-37 Engine)		10267.5
ENGINE INCREMENT (-31 in lieu of -37)		-299.4
WEIGHT EMPTY (-31 Engine)		9968.1

GROSS WEIGHT STATUS

	-37 Engine	-31 Engine
CREW	285	285
FUEL		
Unusable - Fuselage	11	11
- Wing	60	60
OIL		
Trapped	26	26
Engine (16 Gal. -37 Eng., 6 Gal. on -31)	120	45
MILITARY LOAD	450	450
OXYGEN (3) 514 cu. in. bottles	61	61
TOTAL USEFUL LOAD	1,013	938
WEIGHT EMPTY (-31 Engine)	10,268	9,968
"0" Fuel Gross Weight	11,281	10,906 (VS 10,650)

TS-142934
Copy 1 of 3